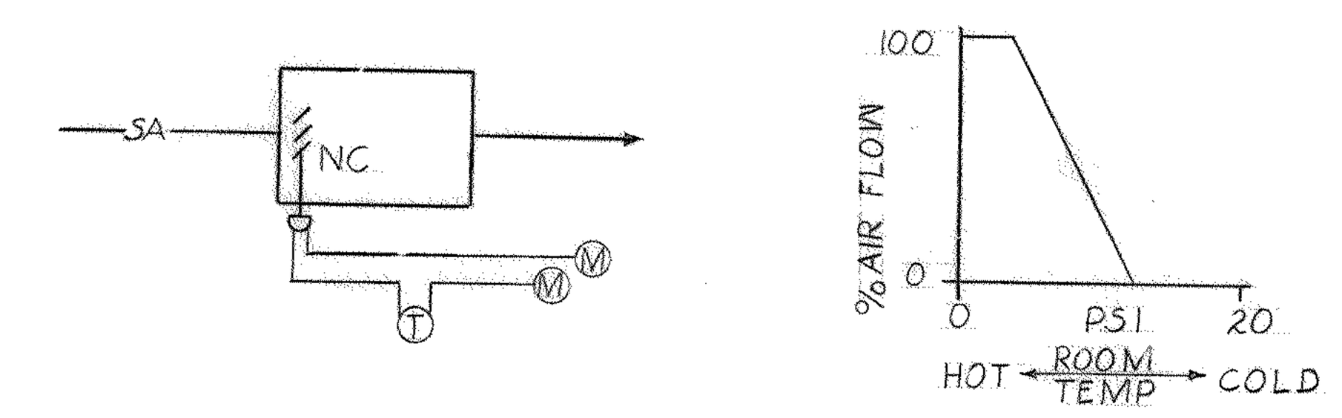
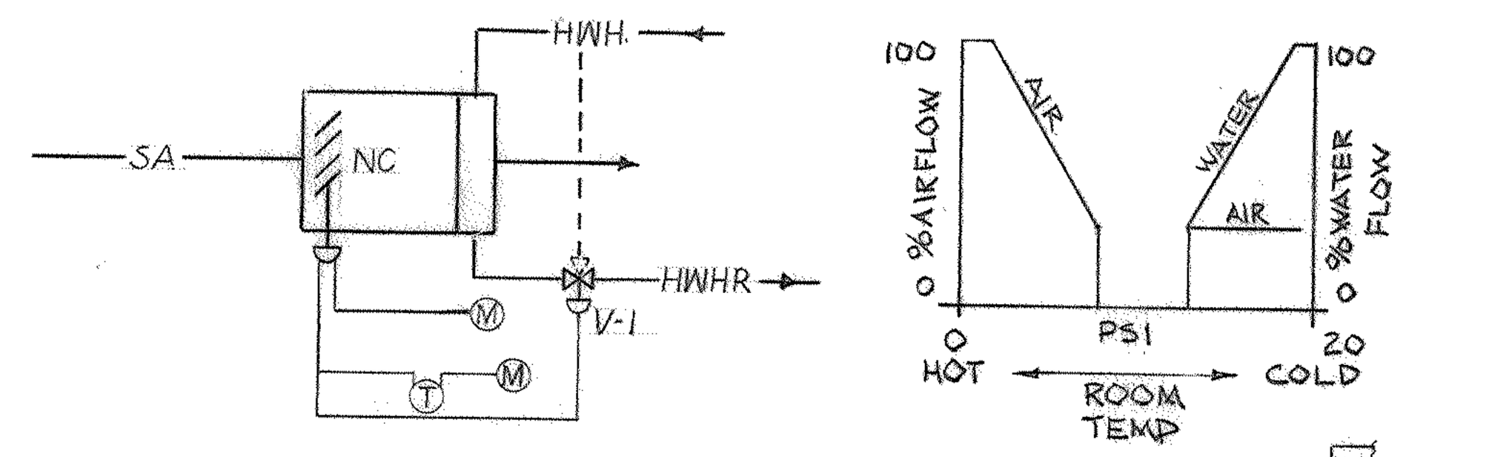


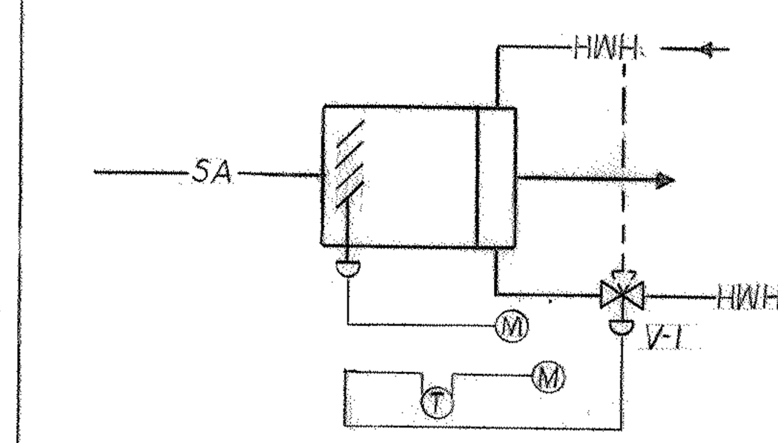
TYPE I - VARIABLE VOLUME TERMINAL UNIT-FULL SHUT-OFF WITHOUT REHEAT

1. ROOMSTAT SHALL MODULATE BOX VOLUME CONTROL FROM AIR FLOW INDICATED ON DRAWINGS FOR MAXIMUM COOLING TO ZERO AIR FLOW.
2. ROOMSTAT SHALL BE SET FOR 78° F.



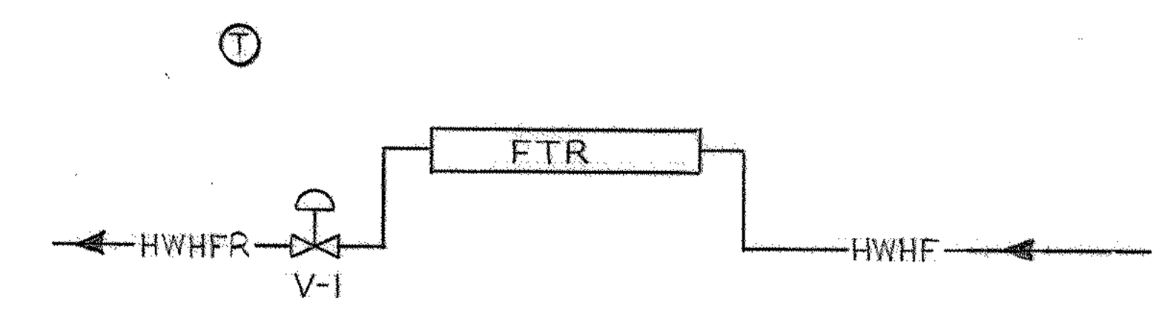
TYPE IV - VARIABLE VOLUME TERMINAL UNIT MINIMUM AIR FLOW & REHEAT COIL

1. ROOMSTAT SHALL MODULATE BOX VOLUME CONTROL FROM AIR FLOW INDICATED ON DRAWINGS FOR MAXIMUM COOLING TO 25% MINIMUM AIR FLOW AND THEN MODULATE VALVE V-1 ON REHEAT COIL.
2. VALVE V-1 SHALL BE TWO-WAY ON 50% OF THE UNITS AND THREE-WAY ON THE OTHER 50% OF THE UNITS. THE VALVES SHALL BE DISTRIBUTED EVENLY THROUGHOUT THE SYSTEM ON ALL BOX SIZES.
3. ROOMSTAT SHALL BE "DEAD BAND" TYPE TO MAINTAIN ROOM AT 78°F FOR COOLING AND AT 72°F FOR HEATING.
4. ROOMS WHERE MINIMUM AIRFLOW VARIES FROM 25% ARE INDICATED ON THE FLOOR PLANS.



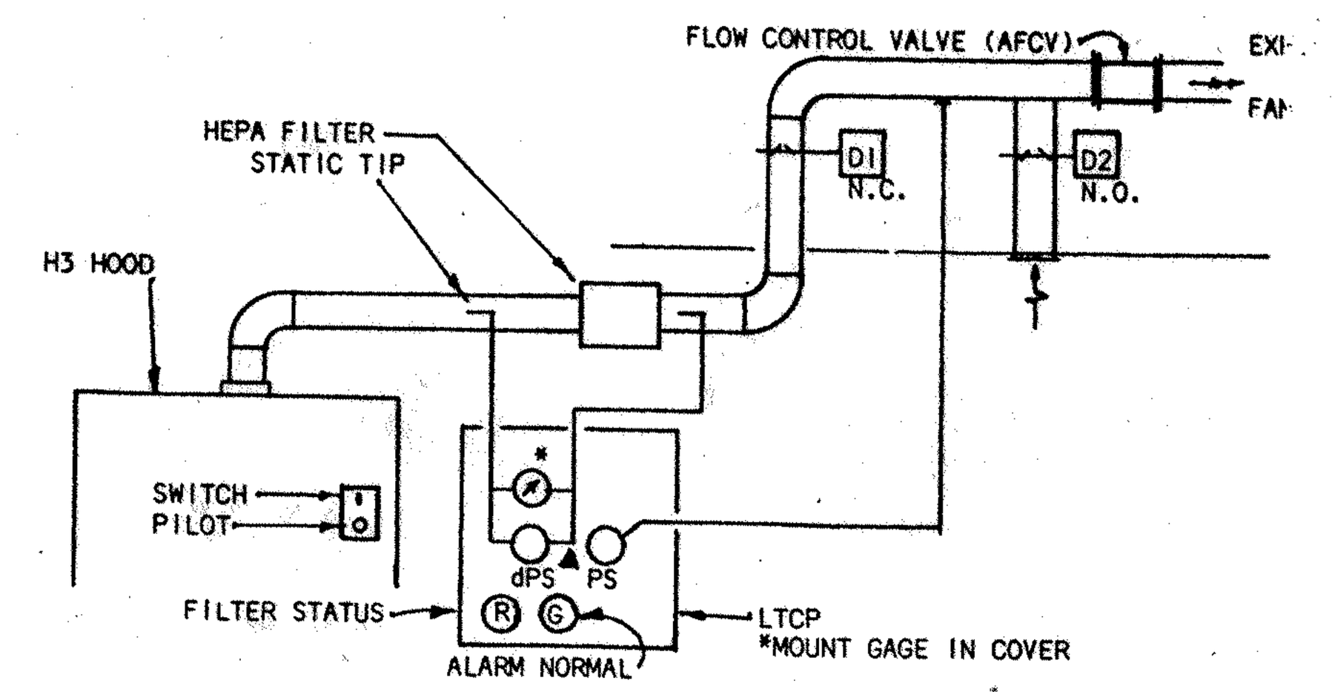
TYPE VII - CONSTANT VOLUME TERMINAL REHEAT

1. TERMINAL BOX MINIMUM AND MAXIMUM VOLUME SETTING SHALL BE AT SAME SETTING FOR CONSTANT VOLUME FLOW.
2. ROOMSTAT SHALL MODULATE VALVE V-1 TO MAINTAIN SPACE TEMPERATURE. ROOMSTAT SHALL BE "DEAD BAND" TYPE TO MAINTAIN ROOM AT 78°F. FOR COOLING AND AT 72°F FOR HEATING. VALVE V-1 SHALL BE TWO-WAY ON 50% OF THE UNITS AND THREE-WAY ON THE OTHER 50% OF THE UNITS. THE VALVES SHALL BE DISTRIBUTED EVENLY THROUGHOUT THE SYSTEM ON ALL BOX SIZES.



HOT WATER FINNED TUBE RADIATION TYPE I CONTROL

1. ROOMSTAT MODULATES HOT WATER VALVE V-1 TO MAINTAIN 72°F.



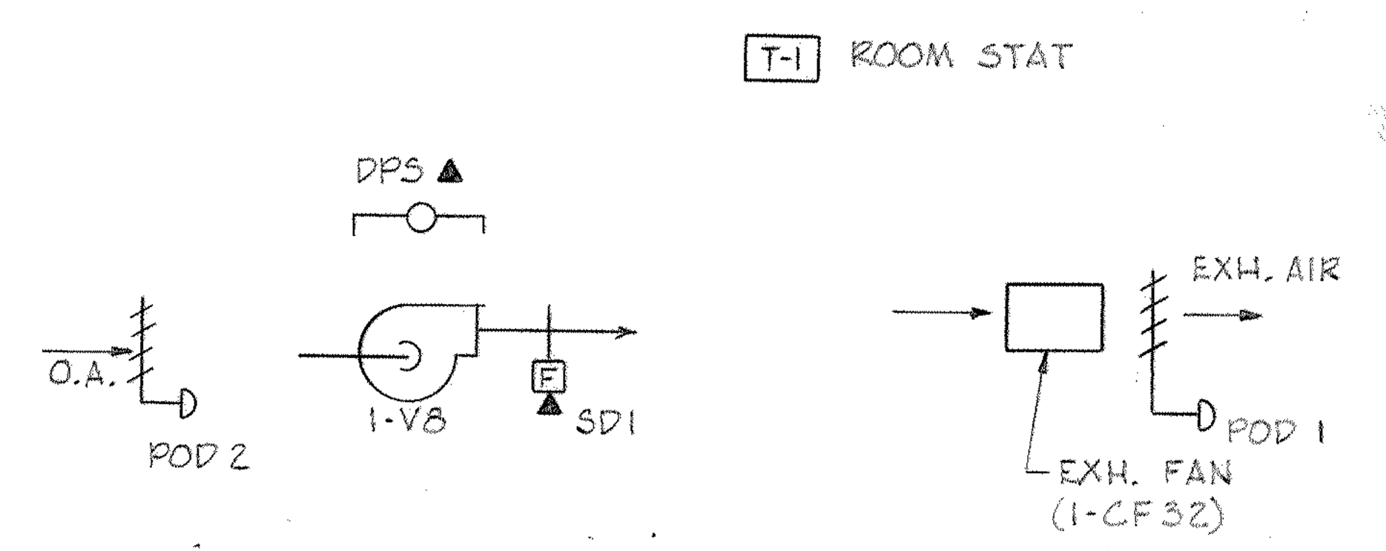
SYMBOLS

- MAGNEHELIC GAGE ,0-3 INCH RANGE, WITH RED POINTER FLAG SET AT 2 INCHES WATER.
- dPS DIFFERENTIAL PRESSURE SWITCH ,0-3 INCHES RANGE TO OPERATE FILTER STATUS LIGHTS.
- PS PRESSURE SWITCH, 0.15 to 0.5 INCHES WATER OPERATING RANGE.

SEQUENCE OF OPERATION

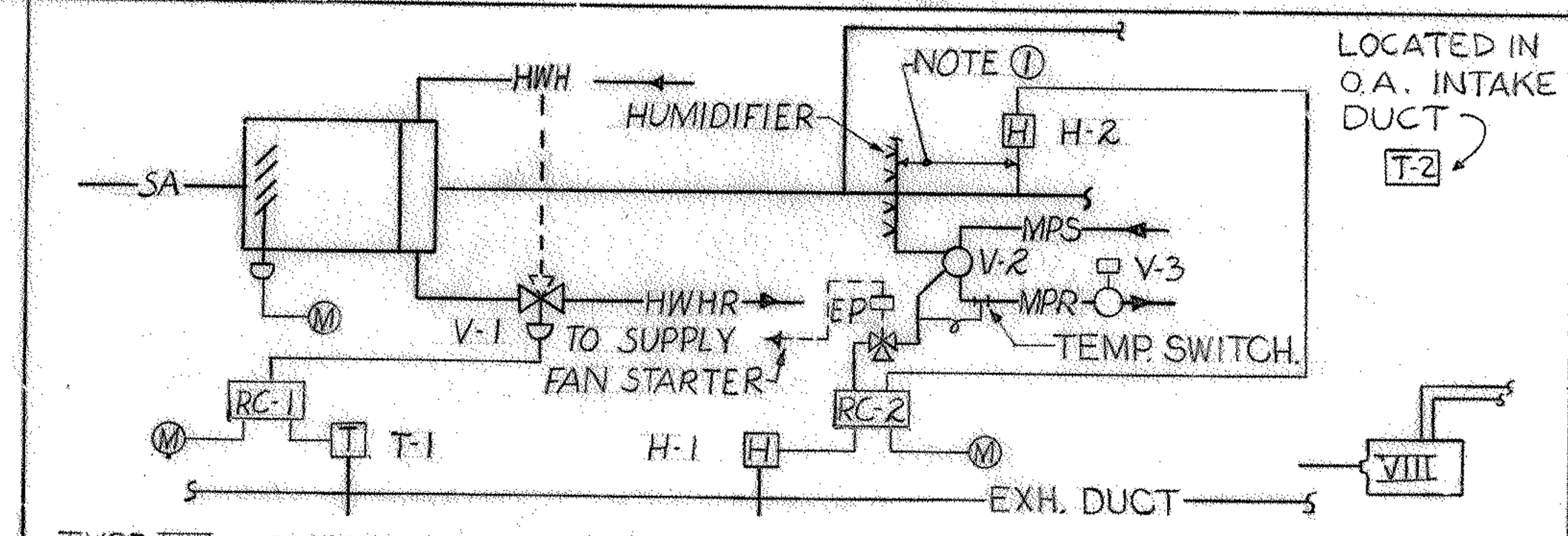
1. THE HOOD EXHAUST FAN SHALL RUN CONTINUOUSLY.
2. WHEN H3 HOOD SWITCH IS ON: D1 SHALL BE OPEN, D2 CLOSED. PILOT LIGHT(FILTER STATUS) SHALL BE DE-ENERGIZED IF DUCT STATIC PRESSURE RISES TO -.25 IN. WATER. WHEN FILTER PRESSURE DROP RISES TO 2 IN. WATER THE RED "FILTER STATUS" ALARM LIGHT SHALL BE ENERGIZED.
3. WHEN H3 HOOD SWITCH IS OFF: D1 SHALL BE CLOSED, D2 OPEN.

RADIOISOTOPE HOOD, H3, CONSTANT VOLUME EXHAUST CONTROLS



SWITCHGEAR ROOM VENTILATION

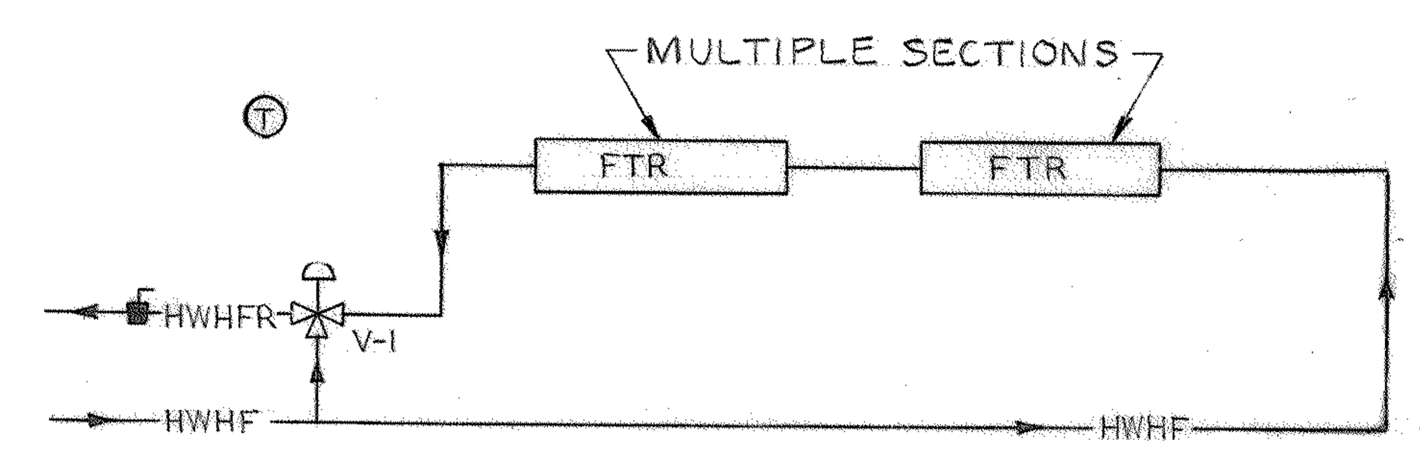
1. ROOMSTAT T-1 OPENS POD-1 AND STARTS EXHAUST FAN WHEN TEMPERATURE RISES TO 85°F. VENTILATING UNIT (1-V8) IS INTERLOCKED WITH EXHAUST FAN. WHEN 1-V8 STARTS, POD-2 OPENS.
2. FANS STOP, POD-1 AND POD-2 CLOSE, WHEN TEMPERATURE FALLS TO 75°F.
3. WHEN SMOKE IS SENSED AT SD-1, FANS STOP AND POD-1 AND POD-2 CLOSE.



TYPE VIII CONSTANT VOLUME TERMINAL REHEAT WITH HUMIDIFIER

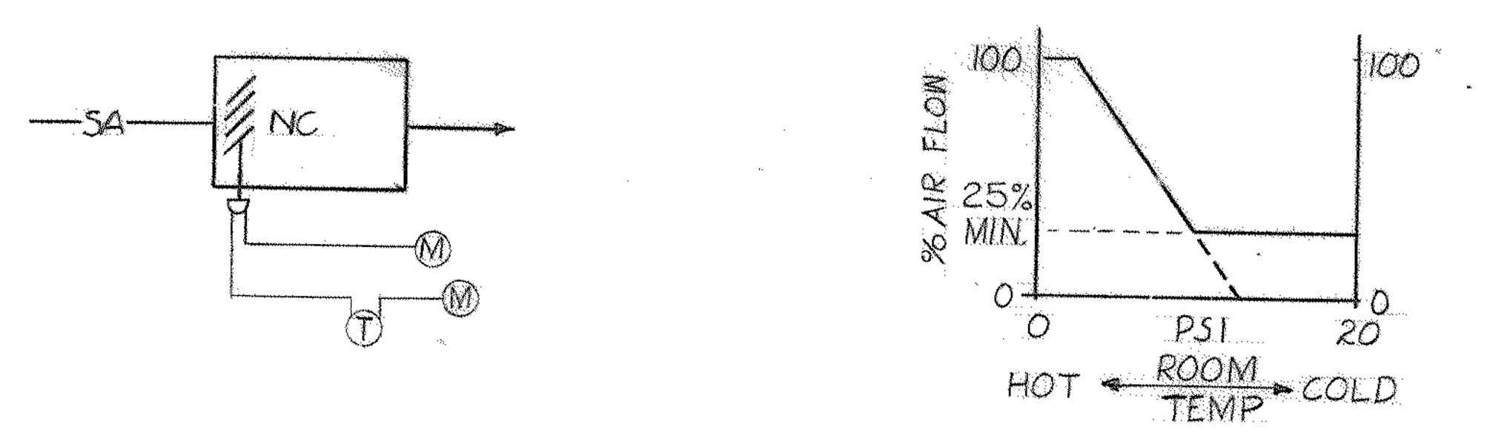
1. TEMPERATURE TRANSMITTER T-1 SHALL MODULATE VALVE V-1 THROUGH RC-1 TO MAINTAIN SPACE TEMPERATURE.
2. VALVE V-1 SHALL BE TWO-WAY ON 50% OF THE UNITS AND THREE-WAY ON THE OTHER 50% OF THE UNITS. THE VALVES SHALL BE DISTRIBUTED EVENLY THROUGHOUT THE SYSTEM ON ALL BOX SIZES.
3. RELATIVE HUMIDITY TRANSMITTER H-1 SHALL MODULATE V-2 THROUGH RC-2 TO MAINTAIN SPACE HUMIDITY. HIGH LIMIT STAT H-2, SET AT 85% R.H., OVERRIDES RC-2. V-2 FURNISHED WITH HUMIDIFIER.
4. DUCT THERMOSTAT T-2 SHALL CLOSE ON-OFF TWO WAY VALVE V-3 WHEN OUTSIDE TEMPERATURE RISES ABOVE 60° AND OPEN VALVE V-3 WHEN OUTSIDE TEMPERATURE IS BELOW 60°F.
5. T-1 AND H-1 SHALL BE LOCATED IN THE INTERSTITIAL SPACE IN EXHAUST AIR DUCT FROM OPERATING ROOM.
6. RC-1 AND RC-2 ARE TEMPERATURE AND HUMIDITY RECEIVER CONTROLLERS WITH SET POINT ADJUSTING DEVICES LOCATED IN O.R. SUPERVISORY PANEL LOCATEDIN CONTROL ROOM 5D120 (SEE DETAIL BELOW).
7. V-2 SHALL CLOSE WHENEVER SUPPLY FAN IS OFF.
8. V-2 SHALL BE INTERLOCKED WITH TEMPERATURE SWITCH TO KEEP HUMIDIFIER OFF UNTIL CONDENSATE APPROACHES STEAM TEMPERATURE. TEMPERATURE SWITCH FURNISHED WITH HUMIDIFIER.

NOTE 1 : LOCATE H2 A MINIMUM OF 10'-0" FROM HUMIDIFIER.



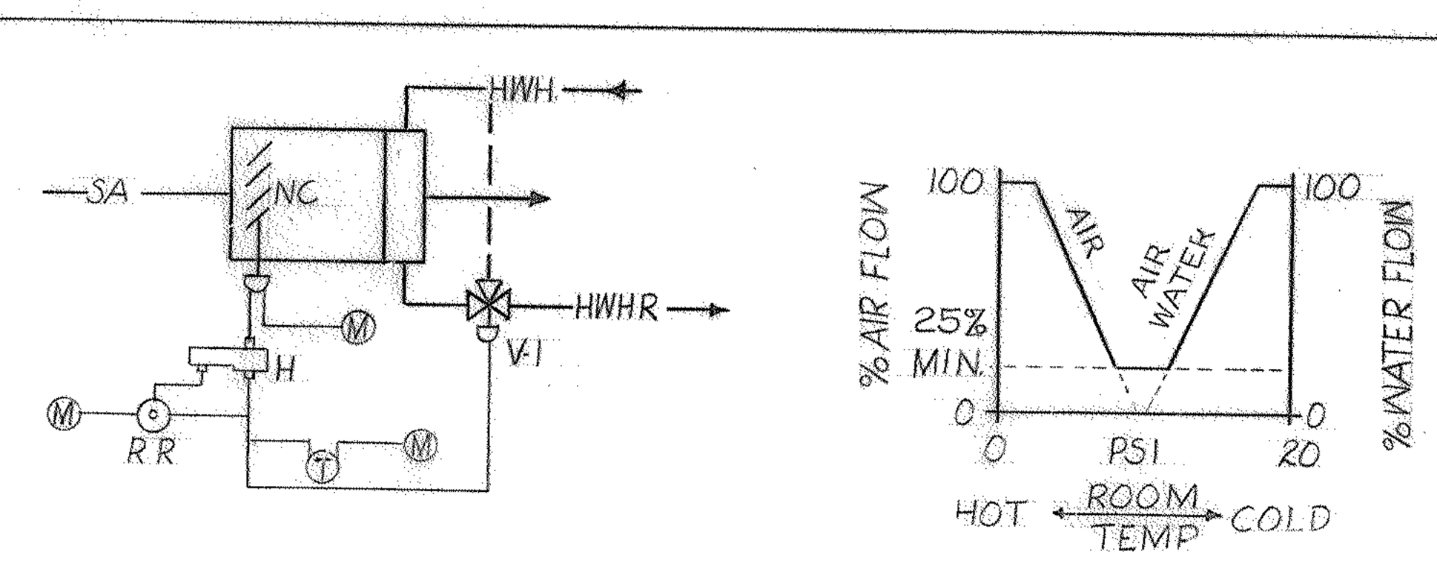
HOT WATER FINNED TUBE RADIATION TYPE II CONTROL

1. HIGH LIMIT ROOM STAT MODULATES V-1 TO MAINTAIN 72°F.
2. HIGH LIMIT ROOM STAT SHALL BE LOCATED AS INDICATED.



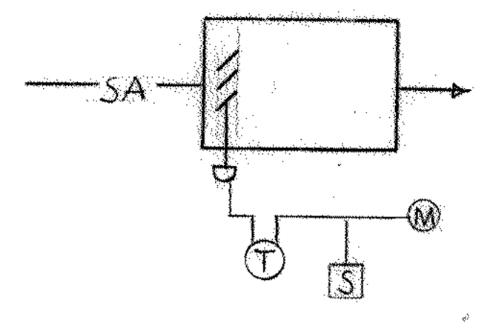
TYPE III - VARIABLE VOLUME TERMINAL UNIT MINIMUM AIR FLOW 25%

1. ROOMSTAT SHALL MODULATE BOX VOLUME CONTROL FROM AIR FLOW INDICATED ON DRAWINGS FOR MAXIMUM COOLING TO 25% MINIMUM FLOW.
2. ROOMSTAT SHALL BE SET FOR 78° F.
3. ROOMS WHERE MINIMUM AIRFLOW VARIES FROM 25% ARE INDICATED ON THE FLOOR PLANS.



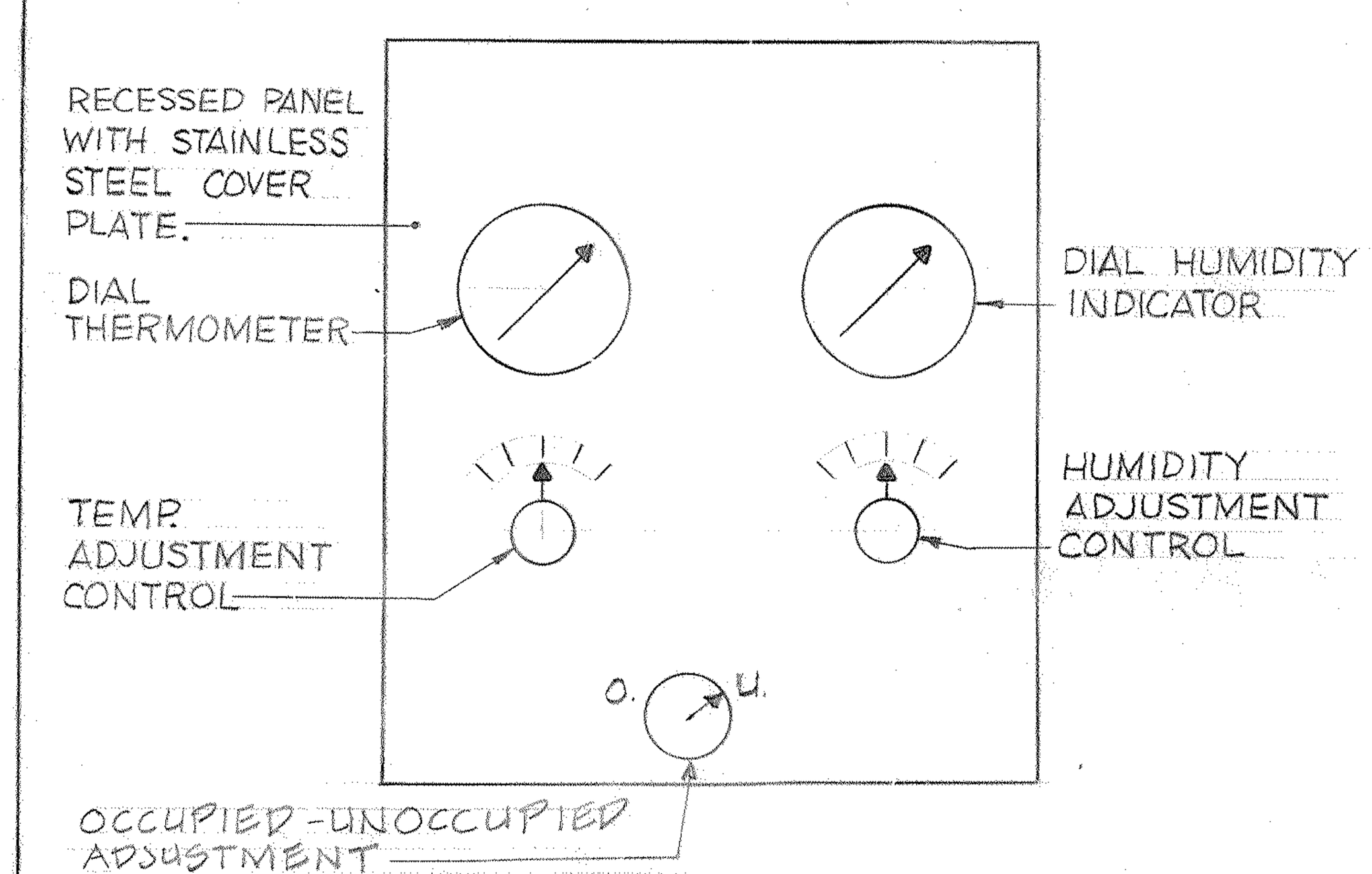
TYPE VI - VARIABLE VOLUME TERMINAL UNIT MINIMUM AIR FOR COOLING AND INCREASING AIR FLOW FOR HEATING

1. ROOMSTAT SHALL MODULATE BOX VOLUME CONTROL FROM AIR FLOW INDICATED ON DRAWING FOR MAXIMUM COOLING TO 25%MINIMUM FLOW INDICATED.
2. FOR HEATING CYCLE REVERSING RELAY (RR) SHALL REVERSE THERMOSTAT AIR PRESSURE TO MODULATE AIR FLOW BACK TOWARD MAXIMUM AIR FLOW AND ALSO MODULATE VALVE V-1 FOR REHEAT.
3. VALVE V-1 SHALL BE TWO-WAY ON 50° OF THE UNITS AND THREE-WAY ON THE OTHER 50° OF THE UNITS. THE VALVES SHALL BE DISTRIBUTED EVENLY THROUGHOUT THE SYSTEM ON ALL BOX SIZES.
4. ROOM THERMOSTAT SHALL BE "DEAD-BAND" TYPE TO MAINTAIN ROOM AT 78°F FOR COOLING AND AT 72°F FOR HEATING.
5. ROOMS WHERE MINIMUM AIRFLOW VARIES FROM 25% ARE INDICATED ON THE FLOOR PLANS.



TERMINAL BOX "OCCUPIED-UNOCCUPIED" CONTROL

1. PROVIDE SELECTOR SWITCH CONTROL SO THAT A TERMINAL BOX OR GROUP OF TERMINAL BOXES WILL HAVE VOLUME REGULATOR POSITIONED TO FULL CLOSED OR INDICATED MINIMUM WHEN SWITCH [S] IS POSITIONED TO "UNOCCUPIED".
2. WHEN SELECTOR SWITCH [S] IS POSITIONED TO "OCCUPIED" VOLUME REGULATOR SHALL RETURN TO NORMAL CONTROL.
3. SEE DRAWING FLOOR PLANS FOR TERMINAL THAT REQUIRES THIS CONTROL. CONTROL SHALL BE FROM ECC AS INDICATED ON FLOOR PLANS.
4. CONTROL TO BE APPLIED TO TYPE I THRU TYPE VIII TERMINALS AS INDICATED.



OPERATING ROOM CONTROL ADJUSTMENT PANEL

1. REQUIRED FOR ROOMS 5D100, 5D101, 5D103, 5D104, 5D105, 5D109, 5D110, 5D121 & 5D123
2. PROVIDE MASTER OPERATING ROOM ADJUSTMENT PANEL AT NURSING STATION (5D120). SHALL CONTAIN INDICATED CONTROLS AND INDICATION FOR NINE (9) O.R.'S

AUTOMATIC CONTROL LEGEND

- ROOM CONTROL: THERMOSTAT, HUMIDISTAT
- REMOTE BULB THERMOSTAT
- DUCT OR PIPE THERMOSTAT (NOTE 1: PROVIDE 12" MIN. LENGTH IN DUCT WHEN SPACE PERMITS)
- DUCT THERMOSTAT WITH AVERAGING ELEMENT
- F DUCT FREEZESTAT WITH 20 FT. ELEMENT SENSITIVE TO ANY 1 FT. SECTION
- ROOM SENSOR: TEMPERATURE, HUMIDITY
- DUCT OR PIPE TEMP. SENSOR (SEE NOTE 1 ABOVE)
- DUCT HUMIDITY SENSOR
- ~~DUCT DEWPOINT SENSOR~~
- SP DUCT STATIC PRESSURE SENSOR
- DUCT TEMP. SENSOR WITH AVERAGING ELEMENT
- SD SMOKE DETECTOR (SEE ELECTRICAL SPECIFICATIONS)
- TEMPERATURE SENSING ELEMENT FOR TRANSMITTING TEMPERATURE TO INDICATOR ON LTCP OR AS OTHERWISE INDICATED (SEE NOTE 1 ABOVE)
- A SENSOR WITH AVERAGING ELEMENT TO TRANSMIT TEMPERATURE TO LTCP
- PE PNEUMATIC ELECTRIC SWITCH
- M CONTROL AIR MAIN
- EP ELECTRO-PNEUMATIC (EP) SWITCH
- R PILOT LIGHT (RED) OR GREEN G
- RC RECEIVER CONTROLLER
- DPS DIFFERENTIAL PRESSURE SWITCH
- GAUGE
- * INDICATES LOCATION IN LTCP
- ▲ INDICATES CONTROL FUNCTION SIGNAL TO ECC
- LTCP LOCAL TEMPERATURE CONTROL PANEL
- ECC ENGINEERING CONTROL CENTER
- ~~INDICATES FUTURE CONTROL FUNCTION SIGNAL TO ECC. PROVIDE SENSING OR TRANSMITTING INSTRUMENT WELL OR PORT FOR FUTURE INSTALLATION OF SIGNAL FUNCTION.~~
- T K KEY STAT
- RR REVERSING RELAY

NOTE: SEE DRAWING 1-H1 FOR ADDITIONAL LEGEND AND ABBREVIATIONS.

AUTOMATIC CONTROL NOTES: (APPLY TO AUTOMATIC CONTROL DRAWINGS H88, H89, H90, H91, H92, H93, H94)

1. ALL SAFETY CONTROLS SHALL BE ACTIVE WITH MOTOR STARTER H-O-A SWITCH IN "H" OR "A" POSITION.
2. THERMOSTAT CONTROLLING CHILLED WATER FLOW TO AIR HANDLING UNITS SHALL HAVE PROPORTIONAL INTEGRAL CONTROL.
3. MANUAL SWITCHES SHALL BE LOCATED ON LTCP CONTROL PANEL UNLESS THIS FUNCTION IS PROVIDED FOR IN THE ECC OR OTHERWISE INDICATED.
4. PRESSURE SWITCHES ~~IN AC PLENUMS~~ SHALL BE ADJUSTABLE.

8-0-1-1349

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"AS BUILT"	6-17-94

RECORD DRAWING
CORRECTED ON BASIS OF DATA
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Approved Project Director	[signature]
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Project No.	511-001D
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Checked	
Building Number	1
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DRAWING No.	1-H89
Dwg.	116 of 123

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Veterans Administration

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